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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/683,764	10/10/2003	Jon H. Hardesty	32444.11	1578

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HAYNES AND BOONE, LLP
901 MAIN STREET, SUITE 3100
DALLAS, TX 75202

EXAMINER

PARKER, FREDERICK JOHN

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/683,764

Applicant(s)

HARDESTY, JON H.

Examiner

Frederick J. Parker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10-10-03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1-21-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. *It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.*

2. The use of the trademarks in [0022] have been noted in this application. They should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

3. Claim 10 is objected to because of the following informalities: claim 10, line 1, "a" before "group" should be deleted and replaced by "the". Appropriate correction is required.

4. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims "19,19-22" have been renumbered 19-23, respectively. *Claim*

Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 8,12,21,23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 8 is vague and indefinite because the meaning of the "mechanical force" for the implementation step is unclear.
- Claim 12 is vague and indefinite because it is unclear how the component is implanted "into the surface", since a surface is simply a plane; it is interpreted to mean the component is implanted either onto the surface or below the surface into the top portion of the substrate, according to figure 5.
- Claim 21 is vague and indefinite because it is unclear what is meant by "a non-chemically bonded mechanism" since the amine salt must at least adhere to the organic wood surface by some bonding means, e.g. Van der Waals bond, covalent bonding, etc.
- Claim 23 is vague and indefinite because it is unclear if the temperature range refers to the oven temperature setting, the substrate temperature, etc.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-6,9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Horinka et al US 6153267.

The reference teaches a process for successfully electrostatically coating lignocellulosic/ wood/ MDF articles (per claim 2) comprising preheating the substrate and at least prior to electrostatic coating; atomizing (same as “spraying” per claims 3-5) a fluid to enhance the charge-carrying capacity of the substrate in a subsequent electrostatic powder application step (same as Applicant’s “implanting” step); electrostatically applying coating powders of polyester, acrylic, epoxy, etc; per claim 10, and then curing the powder-coated substrate by heating or UV radiation, per claims 9 & 11 (col. 4, 38-46). The atomized fluid may simply be water (inherently conductive) or conductive organic acids or amines (col. 3, 66- col. 4, 4). Given the porosity of the cellulosic substrates, at least some of the atomized material in gas or liquid form would have necessarily diffused into the substrate, per claim 6.

9. Claims 21,22 are rejected under 35 U.S.C. 102(b) as being anticipated by Nason et al US 4686108.

A method for rendering non-conductive wood substrates electrostatically sprayable is disclosed, comprising applying to the substrate a conductive, amine-based polymer with a solvent; evaporating off the solvent at elevated temperatures; grounding the conveyor mounting articles to be coated; and electrostatically applying oppositely charged coating particles onto the grounded articles to form coated articles. While an MDF wood substrate is not cited, MDF is inherently a wood substrate, and the Examiner refers the reader to Mayger EP 933 140,

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[0001,0007] which is introduced as a teaching reference merely to establish inherency of MDF as a wood substrate.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horinka et al in view of Hagquist et al US 6548109.

Horinka is cited for the same reasons previously discussed, which are incorporated herein. Applying the conductive coat in solid form is not taught. However, Hagquist et al teaches a similar process of electrostatically applying polymer powders (also acrylic epoxy, polyester, etc) to lignocellulosic/ wood substrates, in which a solvent-free treating composition is applied by roll coating, curtain coating, dip coating, etc (encompassing methods involving mechanical force and diffusion), the composition applied to enhance charge capacity of the substrate, and which

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may include conductive pigments and polymers (col. 5, 63-67; col. 6, 16-67). The treating material is then heated/ cured into what would necessarily be a solid form, see col. 7, 5-27.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Horinka et al by incorporating the treatment coating of Hagquist et al for that of Horinka et al to form a solid conductive coating which enhances charge capacity of the substrate and improves surface quality.

13. Claims 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayger et al EP 0 933 140 in view of Brown et al US 6270853.

Mayger et al teaches that to electrostatically powder coat lignocellulosic substrates (wood/ MDF), the substrate surface must be electrically conductive at the surface to be subsequently electrostatically coated, and accordingly pre-heats the substrate to draw moisture to the surface. Forming a conductive surface by application of an antistatic (conductive) coating is not cited.

Brown et al teaches to spray electrostatic powder coatings of polyester, acrylics, epoxies, etc to electrically non-conducting articles, without limitation, whose surface are pre-treated by application of an anti-static coating to enable subsequent electrostatic powder coating (col. 2, 38-40). The anti-static coating is comprised of fatty amine salts with a solvent ("solution") which evaporates ("removing at least some of the liquid") once applied to the substrate surface by spraying, brushing, etc (col. 3, 34-44). After application of the anti-static and powder coatings, the coated substrate is heated and cured.

Both processes deal with improving surface conductivity of dielectric substrates (e.g. wood, plastic, etc) to permit subsequent application of electrostatic powder coatings. While Brown et al

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doesn't exemplify lignocellulosic/ wood substrates, given the fact the substrates are of a dielectric nature and the reference is not limited as to substrates (col. 1, 49-52), the lignocellulosic substrates of Mayger would have been included. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Mayger by substituting the antistatic conductive coating of Brown et al for the means to form surface conductivity as taught by Mayger because of the express teaching of such anti-static coatings providing sufficient surface conductivity to permit electrostatic coating.

While the specific amines of claims 17 and 19 are not cited, Brown et al teaches the suitability of amines in general to promote charge carrying capacity of a substrate surface (as does Horinka et al on col. 3, 66- col. 4, 4, which further illustrates the state of the art) so that it is the Examiner's position that it would have been obvious to use any such conductive organic amine compounds because of the expectation of providing sufficient surface conductivity to permit electrostatic coating, absent a clear and convincing showing of unexpected or synergistic results to the contrary.

While heating to remove solvent per claim 13 is not cited, it is the Examiner's position that doing so would have been an obvious and conventional step to speed up the overall coating process because heating to remove solvent is notoriously common and well-known in the art. Similarly, applying plural coats of a material to achieve a desired thickness, and correspondingly a desired conductivity would have been an obvious variation within the purview of the skilled artisan to optimize the conductivity of the surface coat prior to electrostatic coating, per claims 14-15.

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As to article claim 20, since the outcome of the combination of references would have been the same as that of claim 20, the product would have been unpatentable over Mayger et al in view of Brown et al. Applicants are reminded that the claimed structure of an article rather than the method by which it is made determines patentability of an article, MPEP 2113.

14. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nason et al US 4686108.

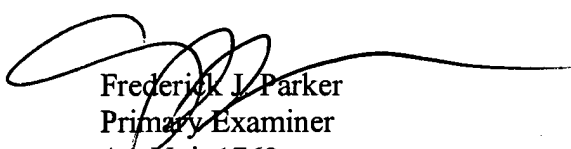
Nason et al is cited for the same reasons previously discussed, which are incorporated herein. While Nason et al does not teach specific heating temperatures to remove solvent, it does teach (1) that solvents are evaporated at elevated temperatures for five minutes in flash ovens (col. 2, 45-52) and (2) solvents used should preferably have boiling points no greater than 125C/ 257F. Thus oven heating temperatures should be of a suitable temperature to remove solvent in the flash ovens in five minutes, which would have been determined by routine experimentation based upon the boiling point of the selected solvent. It therefore appears that the oven temperatures of the reference would have overlapped Applicants range of 100-400F. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made if the overlapping portion of the oven temperatures disclosed by the reference were selected because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Wortheim* 191 USPQ 90. It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Nason et al by determining suitable temperatures to evaporate off a given solvent in a flash oven in about five minutes given the teachings of column 2, 45-52 and column 4, 17-21.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick J. Parker whose telephone number is 571/ 272-1426. The examiner can normally be reached on Mon-Thur. 6:15am -3:45pm, and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 571/272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Frederick J. Parker
Primary Examiner
Art Unit 1762

fjp